

## **REMARKS**

### **I. Status of Claims**

Claims 1 – 6 and 8 – 11 are currently pending in the present application. Claims 1, 5, 10, and 11 are independent. Claims 5 and 11 are currently amended in order to correct alleged informalities in the claims. No new matter has been added.

Claims 5-6 and 8-11 stand objected to for allegedly containing certain informalities. Claims 5, 6, 8-9, and 11 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Japanese Patent Publication No. 2003-314263 (“Hirooka”)<sup>1</sup> in view of U.S. Patent No. 5,319,928 (“Bone”).

Claims 1-4 and 10 are allowed.

The Applicant respectfully requests reconsideration of these rejections in view of the foregoing amendments to the specification and the following remarks.

### **II. Remarks Regarding the Objections to the Claims**

In view of the foregoing amendments, the Applicant respectfully requests withdrawal of these objections.

### **III. Remarks Regarding the § 103 Rejection of Claims 5 and 11**

Independent claims 5 and 11 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hirooka in view of Bone.

The Applicant respectfully submits that claim 5 is patentable over the cited references at least because it recites, in part, “the failure determining device determines whether failure has occurred in the secondary air supply apparatus based on a result of the detection that is performed by the pressure detector *while the first opening/closing valve, the second opening/closing valve, and the third opening/closing valve are **controlled** so as to be closed.*” (emphasis added)

The Applicant respectfully submits that claim 11 is patentable over the cited references at

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<sup>1</sup> The Hirooka reference is assigned to Toyota and has a publication date of November 6, 2003.

least because it recites, in part, “the step of determining whether failure has occurred in the secondary air supply apparatus is based on the detected pressure *while the first opening/closing valve, the second opening/closing valve, and the third opening/closing valve are **controlled** so as to be closed.*” (emphasis added)

Neither Hirooka nor Bone (individually or in combination) teach controlling all three opening/closing valves to be closed during activation of an air pump, as recited by claims 5 and 11 of the present application.

Nevertheless, the Office action asserts that the combination of Hirooka and Bone renders claims 5 and 11 of the present application unpatentable. As discussed in *KSR Int’l Co. v. Teleflex Inc.*, it remains necessary to identify the reason why a person of ordinary skill in the art would have been prompted to combine alleged prior art elements in the manner as claimed. 550 U.S. 398, 418 (2007). Mere conclusory statements are insufficient. *Id.*; MPEP § 2143.01(IV).

One example of a device in accordance with claim 5 of the present application is shown in Figure A below. This example includes a pressure detector (306), an information obtaining device (part of ECU 300), an air pump (200), and three opening/closing valves (212, 222, and 232). The pressure detector (306) measures a pressure in a first air passage (210), in which the first opening/closing valve (212) is disposed.



When testing occurs, the ECU (300) first closes each of the three valves (212, 222, and 232), thus sealing off the first exhaust passage. At this point, the air pump is activated and adds air to the first exhaust passage (210). Because this passage is sealed by the valves, a pressure

buildup occurs in the passage. The pressure detector (306), if functioning normally, should therefore detect a pressure increase. If a pressure increase is not detected, a failure determination is made, indicating that either the pressure detector has failed (because otherwise it would detect a pressure increase) or the pump has failed (no pressure increase actually occurred because no additional air was inserted into the sealed passage).

In order to accurately perform this test, all three valves (212, 222, and 232) must be closed. This ensures that a failure determination is due to either the air pump or pressure detector failing, and not simply due to a valve failing to close. For example, even if the first valve (212) were to fail to close, a pressure increase would still occur, because the second and third valves (222 and 232) would seal off the first passage. Thus, as recited by claims 5 and 11 of the present application, all three valves must be controlled (*e.g.*, by the ECU 300) to be closed.

Hirooka, on the other hand, describes a secondary air feeder, as shown in Figure B below. This system uses a pump (13) to direct air into a passage (10). The system includes a pressure sensor (14) disposed upstream of a first valve (1b). Downstream of the first valve (1b) are second and third valves (16a and 16b), which are check valves. (Hirooka at [0017].)

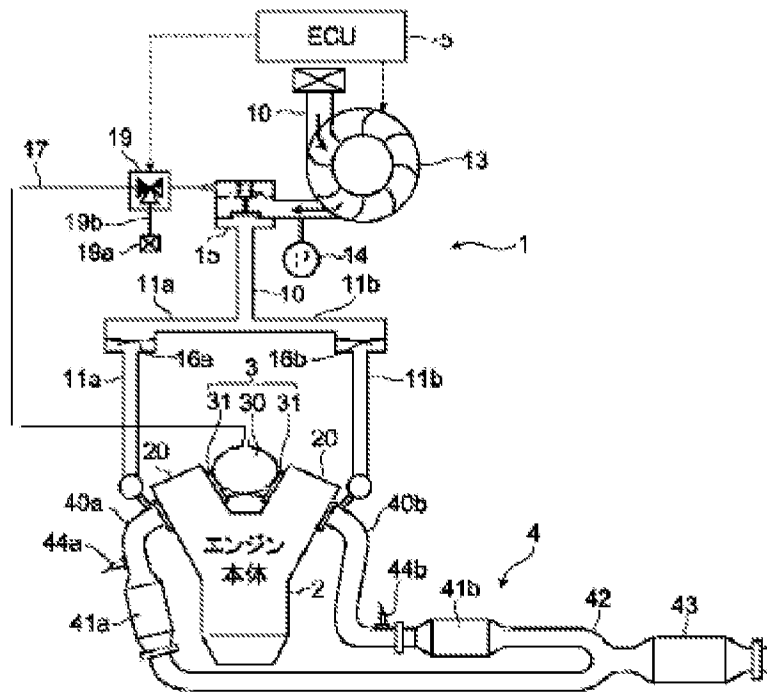


Figure B: FIG. 1 of Hirooka

The Office action argues, on page 6, that the Hirooka's check valves would open during a relatively high pressure and close at lower pressures. However, claims 5 and 11 recite that each of the first, second, and third valves are *controlled* to be closed (e.g., by an electronic control unit as discussed in paragraph [0035] of the published application). The Hirooka check valves are not controlled to be closed by any component of the system. Rather these valves simply open and close as a function of the pressure on either side of the valve. Thus, these valves are not *controlled to be closed*, within the meaning of that phrase as recited by claims 5 and 11 of the present application.

The Hirooka arrangement would have a different effect than that of the invention of claims 5 and 11 of the present application. For example, if Hirooka's first valve (1b) were to fail, air input to the passage (10) would flow past the first valve and toward the check valves (16a and 16b). At a certain point, the pressure increases to a point at which the check valves open, allowing air to pass through. Thus, a pressure increase would not occur. In this instance, a "failure" would not simply indicate that either the pump or pressure sensor has failed. Rather,

the failure of pressure to build in the passage may be due to failure of the first valve (1b). By controlling all three valves to remain closed during testing, the invention recited by claims 5 and 11 of the present application avoids this problem, thereby accurately determining whether either the pressure detector or air pump has failed.

Bone fails to make up for this deficiency. This reference, at best, teaches varying the duration that a secondary air pump is operated based on engine operating parameters.

In sum, none of the cited references teach controlling all three opening/closing valves prior to activating an air pump, as recited by claims 5 and 11 of the present application. At best, Hirooka merely teaches controlling only a single valve, instead allowing other valves (the check valves) to open if a sufficient pressure increase occurs.

For at least these reasons, the Office action has failed to show that the cited references teach every feature of the rejected independent claims. Specifically, neither Hirooka nor Bone (individually or in combination) teach controlling all three opening/closing valves to be closed during activation of an air pump, as recited by claims 5 and 11 of the present application.

Accordingly, it is respectfully submitted that claims 5 and 11, as well as all claims depending therefrom, are patentable over the cited references.

**IV. Conclusion**

In light of the above discussion, the Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance. The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

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